

What is claimed is

1. A thermally curable hot-melt adhesive composition, comprising
- 5 (A) a prepolymer having isocyanate groups, a number average molecular mass Mn of 700 to 6000 and wherein 50 to 100% of the reactive isocyanate groups of the prepolymer are blocked, said prepolymer being the reaction product of
 - (1) at least one straight-chain polyester which is at least semi-crystalline
 - 10 with
 - (2) at least one straight-chain polyester selected from the group consisting of amorphous polyesters and liquid polyesters,
 - (3) optionally at least one polyether, and
 - (4) at least one diisocyanate; and
- 15 (B) at least one reactive component selected from the group consisting of diamines, epoxide adducts of diamines, and polyalcohols.
2. The adhesive of claim 1 wherein prepolymer A is obtained by reacting in admixture with at least one polyether.
- 20 3. The adhesive of claim 2 in which the polyethers of prepolymer A are selected from the group consisting of polyethylene glycol, polypropylene glycol, polytetramethylene glycol and polypropylene glycol modified with ethylene oxide.
- 25 4. The adhesive of claim 1 wherein prepolymer A is obtained from a reaction mixture comprising
 - (1) 25 to 55 wt-% of at least one straight-chain, at least semi-crystalline polyester,
 - 30 (2) 1 to 45 wt-% of at least one straight-chain polyester selected from the group consisting of amorphous polyesters and liquid polyesters,
 - (3) 0 to 40 wt-% of at least one polyether, and
 - (4) at least one diisocyanate;
 wherein the weight percentages are based on the combined weight of the
- 35 polyesters and polyethers.
5. The adhesive of claim 4 in which the prepolymer A is obtained from a reaction mixture comprising

- (1) 25 to 55 wt-% of at least one straight-chain, at least semi-crystalline polyester,
- (2) 15 to 20 wt-% of at least one straight-chain polyester selected from the group consisting of amorphous polyesters and liquid polyesters,
- (3) 0 to 40 wt-% of at least one polyethers, and
- (4) at least one diisocyanate;
- wherein the weight percentages are based on the combined weight of the polyesters and polyethers.
6. The adhesive of claim 1 in which the least semi-crystalline, straight-chain polyesters are prepared from dicarboxylic acids selected from adipic acid and adipic acid derivatives, and polyols selected from ethylene glycol and butanediol-1,4.
7. The adhesive of claim 1, wherein the amorphous and liquid polyesters are prepared by reacting aliphatic, cycloaliphatic or aromatic dicarboxylic acids and the derivatives thereof, with diols.
8. The adhesive of claim 1 in which component B is selected from the group consisting of aliphatic, cycloaliphatic, araliphatic and aromatic diamines; derivatives of dicyclohexyl methane diamine; amino-functional polypropylene glycols; glycerin; trimethylolpropane; hexanediol-1,6; decanediol-1,10; polyether alcohols; polyester alcohols; ricinoleic oil; and polyols based on hydrated dimeric fatty acids.
9. The adhesive of claim 1 wherein the equivalent weight ratio of isocyanate to amine in the adhesive composition is from 1:1 to 1:5.
10. The adhesive of claim 1, wherein the equivalent ratio of diol to diisocyanate is from 1:1 to 1:3.